

NEW FERN SPECIES FROM NORTHERN AUSTRALIA

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Summary

Eight fern species from northern Australia, namely *Cheilanthes cavernicola*, *C. dunlopii*, *C. praetermissa*, *C. pinnatifida*, *Nephrolepis arida*, *Asplenium harmanii*, *A. capitisyork* and *A. bicentenniale* are described as new. The new combination *Cheilanthes pseudovellea* is made based on *Cheilanthes sieberi* subsp. *pseudovellea* H. Quirk & T. Chambers.

In the course of a series of wet season collecting trips into Arnhem Land and other parts of the Northern Territory, it became apparent that a number of undescribed fern taxa occur in these tropical regions. Four of these new species belong to *Cheilanthes* Swartz, a genus that has recently been revised for Australia (Quirk, Chambers & Regan 1983). This genus is far more complex in tropical Australia, especially the Northern Territory, than the revision suggests. Because these ferns are only above ground during the wet season and for a very short period afterwards, they are infrequently studied in a fresh state. Some growth features such as frond and pinna arrangement and growth habit (particularly whether the plants form discrete tufts or spreading clumps), together with the colour of fronds and scales are much more obvious in the living state than they are on dried herbarium specimens. Other fern taxa have come to light as a result of collecting trips to north-eastern Queensland. This paper is presented to validate the names of nine species of ferns for two forthcoming publications; six species for the Fern Flora of the Northern Territory and three species for the Handbook to the Ferns of Queensland.

Cheilanthes cavernicola D. Jones **species nova** affinis *C. fragillimae* F. Muell. frondibus pallentioribus membranaceioribus minus deltoideis, pinnis basalibus in latere basiscopico multum minus evolutis, segmentis ultimis oblongis differt. **Typus:** Northern Territory. Arnhem Land, Oenpelli area, 12°23'S, 133°01'E, 12 June 1978, Henshall 1951, very sheltered sand traps in rock caves (holo: DNA; iso: AD,BRI).

Herbaceous terrestrial fern forming much-branched clumps. Rhizome short-creeping, *ca* 3–4 mm diameter, branched, with light brown, linear-subulate, entire scales 1–1.4 mm long, *ca* 0.1 mm wide. Fronds 8–40 cm long, tufted, erect, thin-textured, light green. Sterile fronds apparently rarely produced. Stipes 5–22 cm long, 0.5–1 mm across, dark brown, wiry, glabrous, except for a few scales like those of the rhizome at the base, shiny, terete, grooved on the upper surface. Rachis colour and grooving as for stipe, with pointed white hairs 0.3–1.1 mm long. Lamina ovate-deltate in outline, 3–18 cm long, 2.5–10 cm wide, on larger fronds the proximal two pairs of pinnae tripinnate, becoming bipinnate near centre then pinnate towards apex, the pinnae arising at about 40–80° to the vertical. Lowest pinnae opposite to subopposite, deltoid, petiolate, 4–6-paired, unequally basiscopically divided. Pinnules 2–6 mm long, 2–3 mm wide, oblong, obtuse, lobed, beset on both sides and margins with white, cottony hairs 0.3–2 mm long. Veins forked once or twice. Sori discrete, of 2–6 sporangia, situated at the tips of the pinnule lobes, unprotected. Spores brown, almost spherical. **Fig. 1.**

Selected collections (all DNA): **Northern Territory.** Mt Brockman, 13 km south of Jabiru East, 12°47'S, 132°53'E, Jun 1980, Craven 6501; Oenpelli Road, 12°25'S, 131°58'E, Dec 1984, Jones 1730; Katherine Gorge National Park, May 1968, Byrnes 676; Deaf Adder Gorge, 13°02'S, 132°57'E, Feb 1977, Dunlop 4347; top of Jim Jim Falls, 13°17'S, 132°51'E, Jan 1981, Dunlop 5699. **Western Australia.** Mitchell River, 14°50'S, 125°42'E, Feb 1980, Dunlop 5279.

Distribution: Arnhem Land in the Northern Territory and the Kimberley Region of Western Australia.

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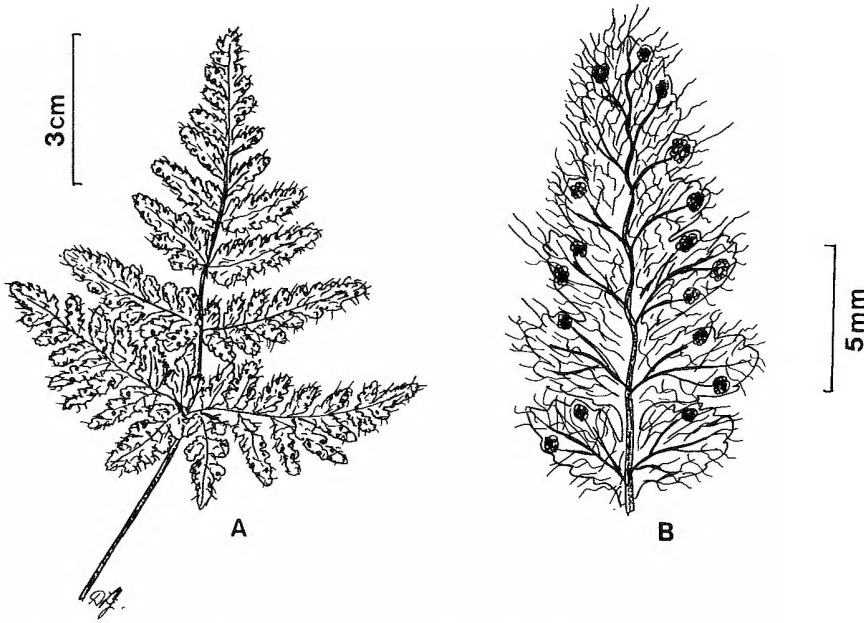


Fig. 1. *Cheilanthes cavernicola*: A. frond. B. pinnule. A,B Henshall 1951.

Habitat: This species grows on sheltered rock ledges and in shallow caves on escarpments of sandstone formation. It is noticeable that plants growing in very moist, sheltered situations have thin-textured, almost membranous fronds when compared with those in more exposed sites.

Notes: *C. cavernicola* has obvious similarities to *C. fragillima* but can be immediately distinguished by its paler, thinner-textured fronds which are hardly deltate (coriaceous, strongly deltate and with stiffly spreading pinnae in *C. fragillima*) and by its oblong rather than deltate ultimate segments.

Etymology: The specific epithet was chosen because this species is often found growing at the entrance to shallow caves.

Cheilanthes dunlop D. Jones **species nova** affinis *C. pumilionis* (R. Br.) F. Muell. frondibus latioribus, bipinnatifidis usque bipinnatis pinnulis latioribus obtusioribus et soris discretis rotundatus a margine dissitis praeditis differt. **Typus:** Northern Territory. Keep River National Park, 15°50'S, 129°06'E, 3 March 1981, Dunlop 5838, in sandy soil on ledge below waterfall (holo: DNA).

Terrestrial, perennial, herbaceous fern forming small dense clumps. Rhizome short-creeping, much-branched, up to 6 mm in diameter, with light brown, shiny, linear-subulate entire scales up to 3.5 mm long, ca 0.3 mm across. Fronds 9–14 cm long, densely tufted, erect, bright green, thinly coriaceous, glabrous. Sterile fronds similar to fertile fronds but smaller. Stipes 4–6 cm long, ca 0.6 mm across, dark red-brown, shiny, sparsely scaly with scales similar to those on the rhizome, becoming nearly glabrous with age. Rachis dark brown in lower part, often green and winged towards apex. Lamina oblong-triangular in outline, 5–8 cm long, 4–5.5 cm wide, bipinnatifid to bipinnate, glabrous, the pinnae arising at about 60–80° to the vertical, lowest pinnae unequally basiscopically divided, deltate, 1.8–3 cm long, 1.2–2 cm wide, cut to or near to the costa into 3–5 pairs of entire or lobed, ovate to broadly oblong, oblique, more or less alternate and decurrent pinnules. Veins conspicuous, forked once or twice. Sori discrete, rounded, those towards the apex of pinnules situated well in from the margins and unprotected. Spores nearly rounded, brown. **Fig. 2A & B.**

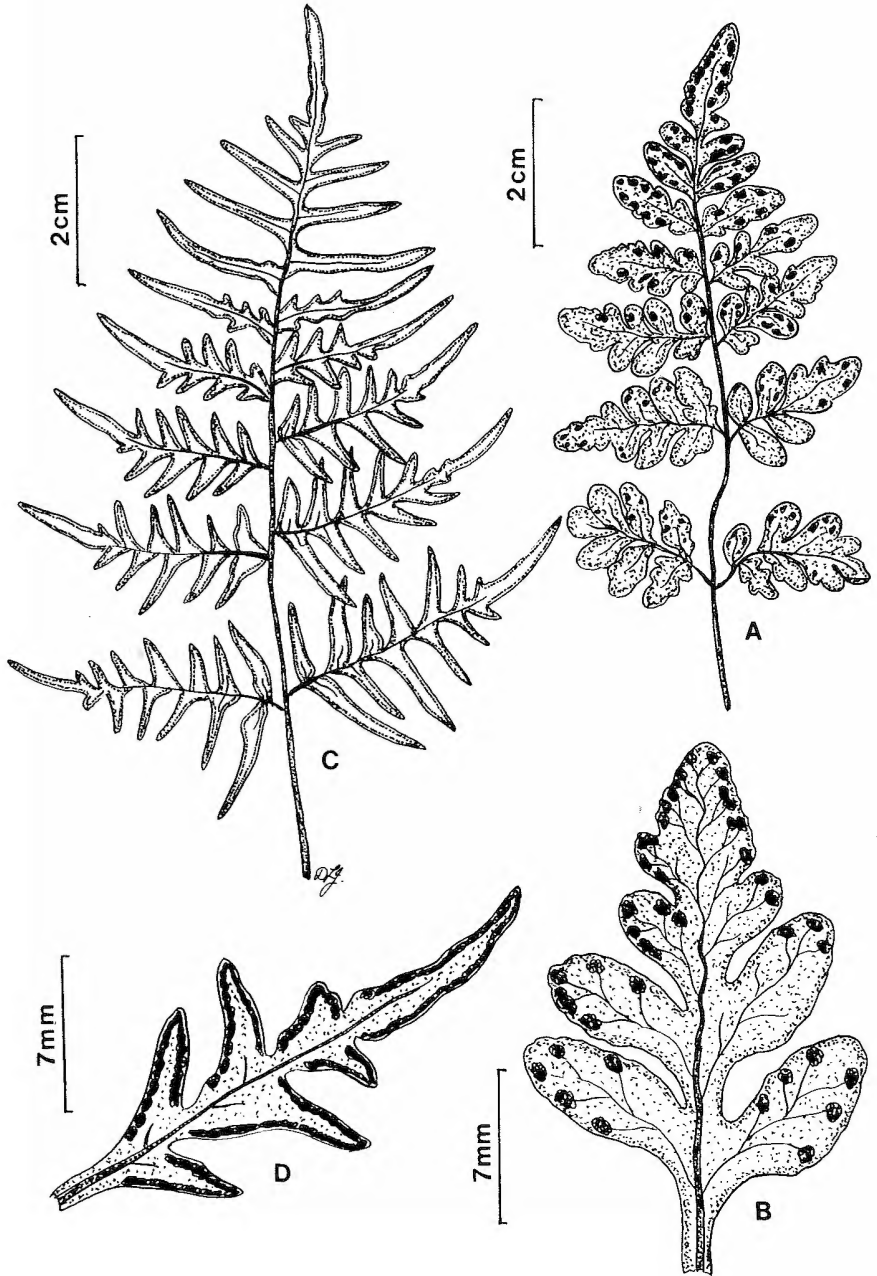


Fig. 2. *Cheilanthes dunlopii*: A. frond. B. pinna. *Cheilanthes praetermissa*: C. frond. D. pinna. A,B Dunlop 5838; C,D Jones 1443.

Distribution: At present known only from the type collection but probably more widespread.

Habitat: Protected, moist ledges of sandstone escarpments.

Notes: *C. dunlopii* has superficial similarities to *C. pumilio* but can be distinguished by its broader, bipinnatifid to bipinnate fronds, pinnules with broader, blunter apices and the discrete rounded sori set in from the margins, especially those near the apex of pinnules. It forms very dense clumps whereas *C. pumilio* is a weak growing fern with few fronds per clump which are hardly crowded.

Conservation status: The conservation status of this poorly known species is suggested as 1K following the criteria of Leigh, Briggs and Hartley (1981).

Etymology: This species is named in honour of Clyde Dunlop, Senior Botanist, Conservation Commission of the Northern Territory, who has a tremendous knowledge of tropical plants and has contributed immensely to the botanical knowledge of the Northern Territory.

Cheilanthes praetermissa D. Jones **species nova** affinis *C. nudiusculae* (R. Br.) T. Moore a qua frondibus crassis glabris praeditis pinnis infimis valde impariter basiscopice divisus differt. **Typus:** Northern Territory. Arnhem Land, near Mt Howship, East Alligator River area, 12°35'S, 133°10'E, 19 February 1984, Jones 1443, open forest in sandy soil between large sandstone boulders (holo: DNA; iso: BRI,CANB,MEL).

Terrestrial herbaceous fern forming dense, spreading clumps. Rhizome short-creeping, much-branched, up to 8 mm in diameter, with fawn to light brown, shiny, linear-subulate entire scales up to 3 mm long, 0.2 mm across. Fronds 11–26 cm long, densely tufted, erect, dark green above, paler beneath, coriaceous, glabrous. Sterile fronds densely tufted, of similar shape to the fertile fronds but smaller. Stipes 5–14 cm long, 0.5–1 mm across, dark red-brown, shiny, glabrous for most of the length but with scales similar to the rhizome towards the base. Rachis and secondary rachises dark red-brown, shiny, glabrous. Lamina deltate-oblong in outline, 6–12 cm long, 5–8 cm wide, bipinnate to tripinnatifid, the pinnae arising at angles of about 90° to the vertical, lowest pinnae very unequally basiscopically divided, obliquely deltate, 30–50 mm long, 30–40 mm wide. Pinnules linear-oblong (largest basiscopic pinnules 18–24 mm long, 3–6 mm wide) entire to pinnatifid, obtuse, well spaced, glabrous. Veins immersed, inconspicuous. Sori confluent in a conspicuous marginal band, unprotected. Spores rounded. **Fig. 2C & D.**

Selected collections (all DNA): Northern Territory, Magela Creek near Bower Billabong, 12°45'S, 133°02'E, Dec 1984, Jones 1725; Lightning Dreaming, 12°55'S, 133°02'E, Feb 1984, Jones 1490; 3 km south-east of Jim Jim Falls, 12°19'S, 132°52'E, Mar 1984, Jones 1531; Twin Falls, 13°19'S, 132°47'E, Mar 1982, Dunlop 6674 & Taylor.

Distribution: Widely distributed in Arnhem Land, Northern Territory.

Habitat: Ledges of sandstone escarpments and rocky outcrops in open forest in sandy or gravelly soil.

Notes: *C. praetermissa* is similar in general form to *C. nudiuscula* but can be immediately distinguished by its thicker-textured completely glabrous fronds with a different lobing particularly on the basiscopic side of the pinnae. It forms very dense, widely spreading clumps in the manner of *C. austrotenuifolia* H. Quirk and T. Chambers and quite different from the small, discrete clumps of *C. nudiuscula*. It is one of the commonest ferns of Arnhem Land.

Conservation status: Common and conserved in Kakadu National Park.

Etymology: The specific epithet has been chosen because it is surprising that such a common species has been overlooked by previous collectors.

Cheilanthes pinnatifida D. Jones **species nova** affinis *C. tenuissimae* Bailey frondibus bipinnatis usque tripinnatifidis pinnulis brevioribus et parte clara pinnatifida in quaque pinna in apicem caudiformem angustata praeditis differt. **Typus:** Northern Territory. Arnhem Land, Lightning Dreaming, 12°55'S, 133°02'E, 23 February 1984, Jones 1478, open forest, sandstone ledges, among *Triodia* in protected situations (holo: DNA; iso: BRI,CANB,MEL).

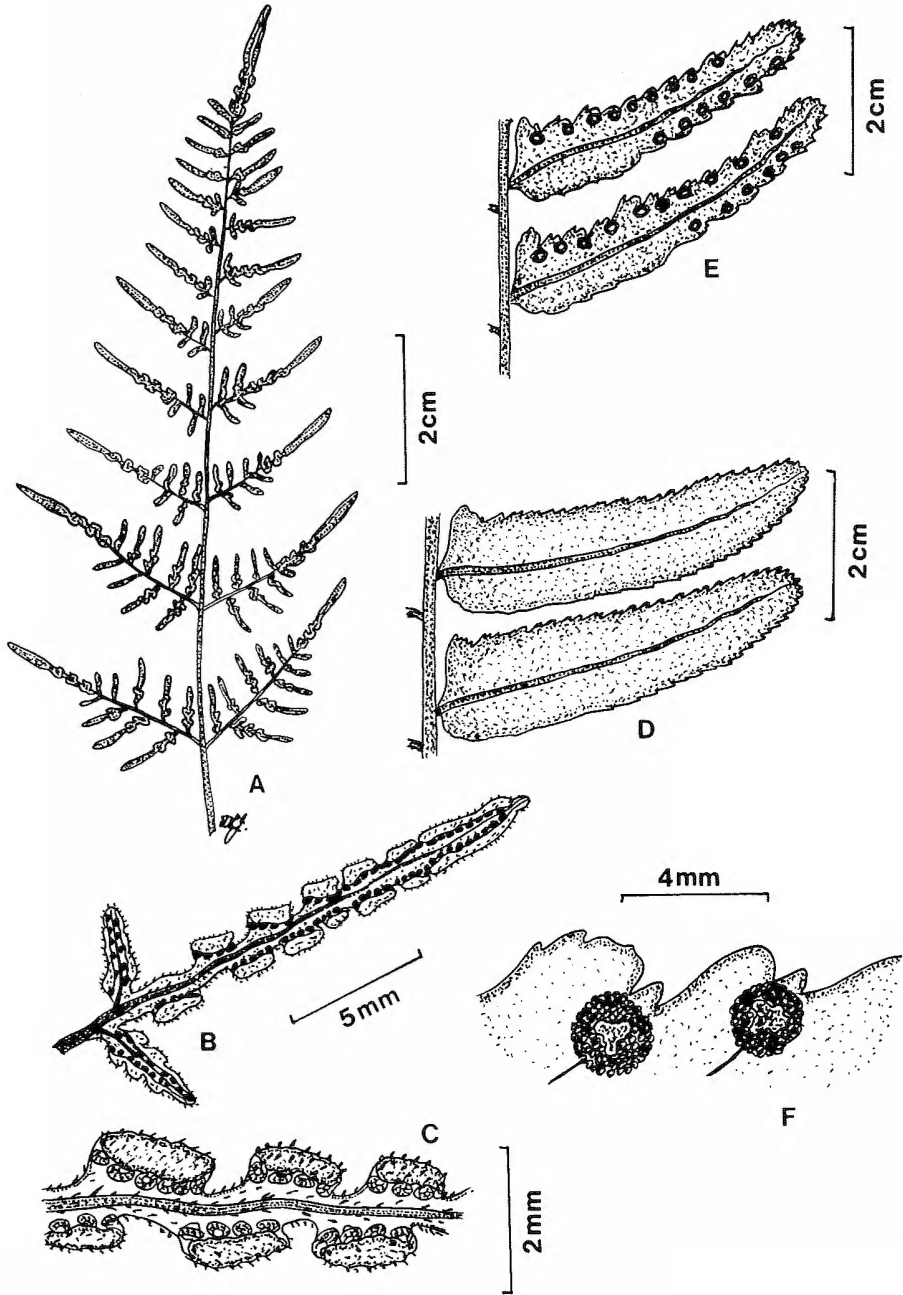


Fig. 3. *Cheilanthes pinnatifida*: A. frond. B. distal part of pinna. C. pinnatifid section of pinna. *Nephrolepis arida*: D. two sterile pinnae. E. two fertile pinnae. F. two sori and lobing of pinna margin. A,B,C Jones 1478; D,E,F Jones 1598.

Terrestrial herbaceous fern forming dense clumps. Rhizome short creeping, much-branched, up to 5 mm in diameter, with fawn to light brown, linear-subulate entire scales up to 2.5 mm long, *ca* 1 mm across. Fronds 4–65 cm long, densely tufted, erect, thinly coriaceous, dark green above, lighter beneath, with numerous short trichomes. Sterile fronds often abundant, densely clustered, similar in shape to the fertile fronds but smaller. Stipes 1.5–28(–40 cm) long, 0.5–1 mm wide, medium to dark reddish brown, shiny, glabrous for most of the length, with a few scales similar to the rhizome at the base. Rachis brown, glabrous. Lamina deltate-oblong in outline, 2.5–25 cm long, 1.5–10 cm wide, bipinnate to tripinnatifid, ending in a drawn out, pinnatifid to entire cauda 8–45 mm long, with short trichomes, the pinnae arising at about 60–80° to the vertical, lowest pinnae slightly, unequally, basiscopically divided, narrow deltate, 7–50 mm long, 4–14 mm wide, cut to the costa into 2–5 pairs of linear to oblong, more or less opposite pinnules 2–13 mm long, 0.8–2 mm wide, then 3–5 pairs of oblique lobes *ca* 1–1.4 mm long, then ending in a linear-oblong, crenate to entire cauda 3–20 mm long, the surfaces with numerous short trichomes. Secondary rachises winged. Veins fairly conspicuous, forked once or twice. Sori discrete, crowded in an apparent marginal band, the pinnule margins flat or more usually strongly folded over the edge of the soral band. **Fig. 3A–C.**

Selected collections (all DNA): **Northern Territory.** East Alligator River area, near Mt Howship, 12°35'S, 133°10'E, Feb 1984, *Jones* 1462; Goomadeer River, 12°34'S, 133°23'E, Jun 1978, *Henshall* 1978; 3 km south of Jim Jim Falls, 12°19'S, 132°52'E, Mar 1984, *Jones* 1511; 6 km south of Mt Gilruth, 13°10'S, 133°16'E, Mar 1984, *Jones* 1544; headwaters of East Alligator River, 12°48'S, 133°21'E, Mar 1984, *Jones* 1549. **Western Australia.** Mitchell River, 14°50'S, 125°42'E, Feb 1980, *Dunlop* 5284.

Distribution: Widely distributed in Arnhem Land with a single collection from the Kimberley Region of Western Australia.

Habitat: Rock ledges and open areas among rocks in sandstone escarpments, often near streams.

Notes: This species is noticeably variable in frond length and growth habit depending on its situation. In very open sites plants may form very dense clumps with the fronds about 8 cm tall (*Jones* 1511). In sheltered situations close to streams or among clumps of *Triodia* the ferns are much sparser and have weak, straggly fronds to about 65 cm tall (*Jones* 1521). *C. pinnatifida* bears some similarities to both *C. tenuissima* and to a lesser extent *C. caudata*. The latter species can be distinguished immediately by its black stipes and tripinnate lower pinnae. *C. pinnatifida* differs from *C. tenuissima* by the more finely divided fronds (bipinnate to tripinnatifid) and shorter pinnules. The pinnatifid lobing which precedes the apical cauda on most pinna is also distinctive.

Conservation status: Common and conserved in Kakadu National Park.

Etymology: The specific epithet was chosen because of the prominent pinnatifid section which is present on most pinnae.

Nephrolepis arida D. Jones **species nova** affinis *N. cordifoliae* (L.) C. Presl frondibus multus latioribus pinnis profunde crenatis usque lobatis apice late obtuso profunde crenato usque dentato differt. **Typus:** Northern Territory, Central Australia. Talliputta Gorge, 17 July 1984, *Jones* 1598, on wet sandstone at head of small gorge (holo: DNA; iso: AD,BRI,CANB,CBG,K,MEL,NSW).

Perennial fern forming small, spreading colonies. Rhizome 1–6 cm long, erect or oblique, slender, wiry, bearing a group of erect stipes and many spreading runners. Rhizome scales 2.3–2.8 mm long, 0.4–0.5 mm wide, linear-lanceolate to lanceolate, long acuminate, castaneous, clathrate, thin-textured, with numerous fine, spreading or tangled, marginal hairs. Fronds 80–170 cm long, tufted, arching to semi-pendulous, light to bright green. Stipes 30–40 cm long, pale brown, dull, densely scaly in the basal 1–2 cm then sparsely scaly, the scales similar to those of the rhizome together with smaller, very narrow scales which have an expanded base. Rachis pale brown, sparsely scaly, the scales in the central groove *ca* 1 mm long, linear, brown, with spreading marginal hairs. Lamina 1-pinnate, oblong-lanceolate in outline, 50–130 cm long, 5.5–9 cm wide. Pinnae 35–50 pairs, median ones longest, decrescent to base and apex of frond, widely spaced and not touching, spreading or obliquely erect, those in the basal third deflexed to retrorse. Sterile pinnae 15–45 mm long, 7–14 mm wide, oblong-lanceolate, slightly falcate, wider than fertile pinnae, acroscopic side at base with a broadly deltoid auricle *ca* 3 mm long, base more or less truncate, basiscopical side broadly cuneate to rounded and narrower than upper

side, margins shallowly crenate, apex broadly obtuse or dilated, deeply crenate, ventral surface of costa with numerous tiny, linear scales, veins indistinct, once or twice forked, ending in small, white hydathodes on the ventral surface. Fertile pinnae 25–55 mm long, 5–12 mm wide, linear-lanceolate, more or less falcate, base prominently auricled on acroscopic side and less so on basiscopic side, the margins prominently, shallowly lobed, a small blunt tooth prominent on the distal margin of each lobe near the sinus, apex broadly obtuse or dilated, deeply crenate. Sori well within margin, adjacent to each sinus, terminal on the acroscopic branch of a vein group. Indusia 1–1.3 mm across, reniform with a narrow sinus. **Fig. 3D–F.**

Collections examined: Northern Territory. Jasper Gorge, 16°02'S, 133°45'E, Jul 1974, Carr 2921 & Beaglehole 46700 (DNA); Wessell Islands, 11°19'S, 136°36'E, Oct 1972, Latz 4099 (DNA). Western Australia. Adcock Gorge, Kimberleys, ca 180km east of Derby, WA, Jul 1974, Carr 4244 & Beaglehole 48022 (PERTH).

Distribution: Northern Territory (Central Australia and Jasper Gorge and the Wessell Islands in the north), and Western Australia (Kimberley Region); apparently endemic.

Habitat: Wet crevices and ledges in protected sandstone gorges.

Notes: This species has been confused with *Nephrolepis cordifolia* (Chippendale 1972) but Chinnock and Henshall (1981) were aware of its distinctive features and suggested that it may be a new species. It is more robust than *N. cordifolia* with longer, broader fronds and very different pinnae. These have crenate to lobed margins and a broadly obtuse or even dilated apex which is prominently crenate. The crenations on the fertile pinnae have a small, blunt tooth on the distal margin near each sinus. The new taxon is easily distinguished from *N. biserrata* (Swartz) Schott which has much larger fronds and entire, acuminate pinnae.

Conservation status: Although widespread, *N. arida* is very sporadic in its distribution and is not known to be conserved. Suggested status 3K based on Leigh, Briggs and Hartley (1981).

Etymology: The specific epithet refers to the prevailing dry macroclimate where this fern grows.

Asplenium harmanii D. Jones **species nova** affinis *A. australasici* (J. Smith) Hook. surculis dissitis basalaribus per ramificationem lateralem rhizomatis in plantis veteribus proditis, frondibus rigide erectis rosulum imm undulum formantibus et marginibus in basim extensam aloideam gradatim decrescentibus differt. **Typus:** Queensland. MORETON DISTRICT: McPherson Range, O'Reillys Property, Green Mountains, 17 October 1987, Jones 2481 & Harman (holo: BRI; iso: MEL,NSW).

Lithophytic fern forming an untidy, litter-collecting rosette of fronds. Rhizome erect, stout, woody, with an apical rosette of fronds, below them a large mass of roots bearing copious, persistent, brown root hairs, lateral growths arising sporadically from lower nodes on mature plants. Scales clothing apex of rhizome and base of stipes ca 30 mm long, 2 mm wide, linear, thin-textured, clathrate, pale brown with transparent bases, margins with numerous, prominent, hair-like appendages. Fronds simple, 50–130 cm long, 8–13 cm wide, dark green, coriaceous, shiny, arranged in a very close spiral, ascending steeply to form an irregular, rather untidy rosette. Stipes short, stout, dark greyish black, shiny, ventral surface rounded. Lamina widest just above middle, tapering proximally to a narrow base which is drawn out like a long wing, distally to an obtuse to subacute apex. Costa of similar colour to stipes, flat and very shallowly grooved on dorsal surface, strongly and very acutely keeled on ventral surface, the keel almost wing-like, green and somewhat sinuous. Veins forked once either near the costa or above the middle, at an angle of ca 45° to costa, uniting to form a continuous vein ca 0.5 mm from margin. Sori narrow, linear, present on nearly every vein or vein branch in the distal third of a fertile frond, extending from near the costa for two-thirds of the distance to the margin. Indusia ca 0.5 mm wide, reflexed at maturity. Spores monolete, light brown, wing thickened or folded. **Fig. 4.**

Distribution: So far only known from above 1000 m altitude in the McPherson Range but probably more widespread. It is common in parts of Lamington National Park and extends into New South Wales as the author has seen living material in the Border Ranges National Park.

Habitat: On basalt rocks, boulders and cliff faces close to or on escarpments in rainforest.

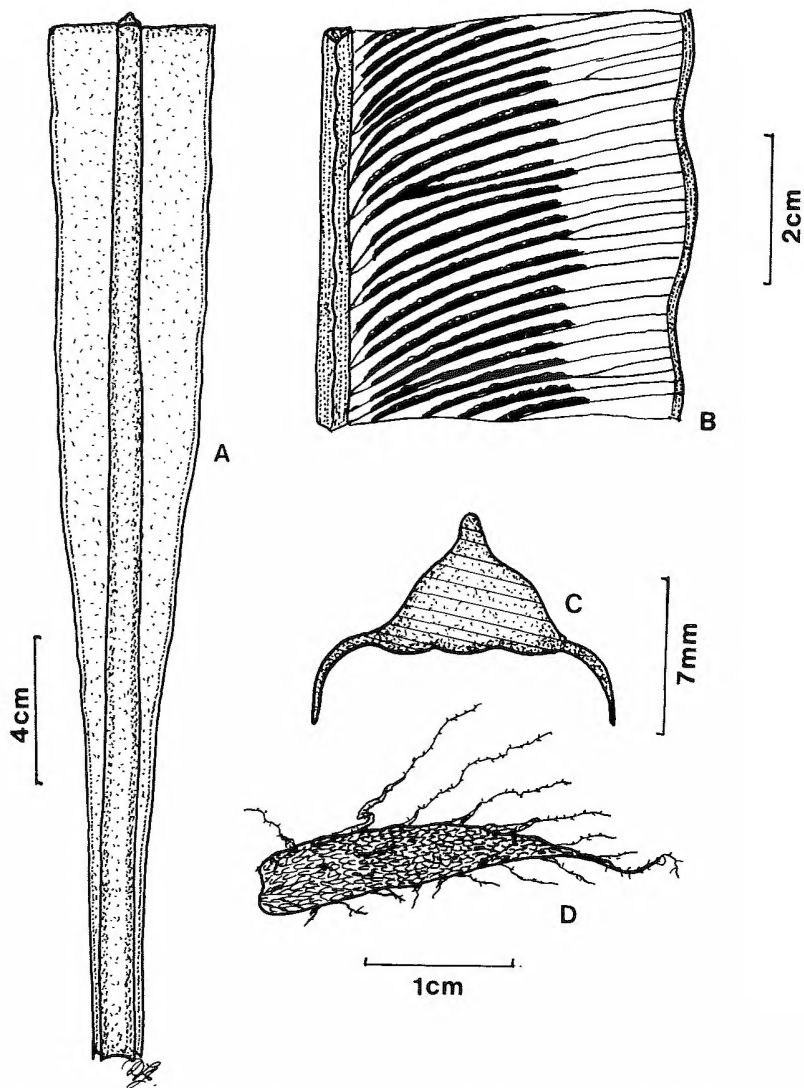


Fig. 4. *Asplenium harmanii*: A. base of frond showing tapered margins. B. section of fertile frond. C. T.S. through frond near base. D. rhizome scale. A,B,C,D Jones 2481 & Harman.

Notes: *A. harmanii* has obvious close affinities with *A. australasicum* but can be distinguished immediately by the long-tapered, narrow, wing-like base to the fronds (the margins are parallel and suddenly incurved in *A. australasicum*), the adaxial surface of the midrib being more acute and with a green, sinuous, wing-like keel and the stiffly erect, dark green fronds which form an untidy rosette in contrast to the neat, radiating, yellow-green rosette of *A. australasicum*. Holttum (1974) has drawn attention to the importance of growth habit in this group of ferns. With its erect fronds arising at various points in the clump, *A. harmanii* is much less efficient at trapping falling debris than is the radiating rosette of *A. australasicum*, the fronds of which are produced almost in a circle. The presence of more than one growth apex on the rhizomes of *A. harmanii* is a significant habit absent from *A. australasicum* in which the rhizome never branches and the fronds arise in a single spiral from the outside of the growing apex. Lateral branching is only obvious on old plants of *A. harmanii* and observations suggest that

the branches eventually become separate plants and by this technique rocks may be colonized clonally. It is significant that *A. harmanii* grows mainly on rocks (rarely trees), whereas *A. australasicum* may be commonly found on both. The fronds of *A. harmanii* are much darker green than those of *A. australasicum*, a feature which is noticeable in plants growing together in conditions of similar shading and which is retained in cultivated specimens.

Etymology: The species was discovered by Colin W. Harman of O'Reilly's Guest House and is named in his honour. Mr Harman has many other notable botanical finds to his credit and has been of considerable assistance to my botanical research.

Asplenium capitisyork D. Jones **species nova** affinis *A. paleaci* R. Br. stipitibus longioribus, pinnis multum longioribus membranaceioribus laevioribus marginibus profundius lobatis differt. **Typus:** Queensland. COOK DISTRICT: head of Hann Creek, William Thompson Range, Cape York Peninsula, 10 September 1983, *Jones* 1207 (holo: BRI; iso: CBG,MEL,NSW,QRS).

Perennial fern forming discrete clumps. Rhizome short-creeping, branched, up to 1 cm in diameter, with dark brown to blackish, pale-margined, shiny, lanceolate, entire scales up to 4 mm long, *ca* 1.5 mm across. Fronds 25–60 cm long, densely tufted, erect to arching, dark green, coriaceous. Stipes 9–16 cm long, brown, dull, densely covered with ovate, clathrate scales to 2 mm long which are broad at the base then quickly taper to a long-attenuate apical section. Lamina 1-pinnate, linear-lanceolate in outline, 18–45 cm long, 4–6 cm wide, with 12–22 pairs of pinnae, proliferous near the apex. Basal pinnae longest (to 45 mm long, 10 mm wide), more or less lanceolate in outline, cuneate at base, decrescent towards apex of frond, alternate, widely spaced (1–4 times pinna width apart), sessile to subsessile, more or less auriculate acropically at the base, shortly dimidiate basiscopically, basal ones often with margins irregularly lobed, dark green on dorsal surface, paler beneath, venation conspicuous. Middle pinnae 2.5–4 cm long, 7–12 mm wide. Apical segment somewhat similar to lateral pinnae, the apex shortly caudiform. Rachis matt brown, with numerous linear scales *ca* 1 mm long. Sori linear-oblong, up to 14 per pinna, set at an angle on both sides of the costa. Indusia linear-oblong, entire, membranous. **Fig. 5A & B.**

Distribution: Cape York Peninsula, North-eastern Queensland.

Habitat: Rainforest, on rocks and boulders in humid gullies and ephemeral stream beds.

Notes: *A. capitisyork* is superficially similar to *A. paleaceum* but can be immediately distinguished by the much longer stipes, the longer, narrower pinnae which are thinner textured, smoother and the margins more deeply lobed. It is locally common in suitable habitats. In dry periods the fronds curl inwards and lose texture, becoming very dull and almost papery but refreshen quickly after substantial rain.

Conservation status: This species is common and is conserved in National Parks.

Etymology: The specific epithet was chosen because of the abundance of this species on Cape York Peninsula.

Asplenium bicentennale D. Jones **species nova** affinis *A. paleaci* R. Br. statura multum parviore, frondibus usque 25 cm longis, pinnis paucioribus (5–14 paribus) brevioribus, cuneatis, sessilis, eis distalis in apicem prominentum caudiforman unitis differt. **Typus:** Queensland. COOK DISTRICT: Lamb Range (Tinaroo Hills), Atherton Tableland, 18 July 1983, *Jones* 1176 & *Gray*, 1000 m, lithophyte on boulders in rainforest along small creek (holo: BRI; iso: CBG,K,MEL,NSW,QRS).

Perennial fern forming small clumps. Rhizome short, tufted, up to 7 mm in diameter, with light to dark brown, clathrate, shiny, lanceolate, entire scales up to 3 mm long, *ca* 1 mm across. Fronds 8–23 cm long, arching, dark green, coriaceous. Stipes 2–3 cm long, light brown, dull, densely covered with clathrate scales to 2 mm long which are deltate at the base then quickly taper to a long-attenuate apical section. Rachis greenish-brown, with numerous linear scales. Lamina 1-pinnate, narrow-oblong in outline, 6–20 cm long, 1.5–2.5 cm wide, with 5–14 pairs of pinnae, proliferous near the apex. Lateral pinnae decrescent towards apex and base, oblong-cuneate to ovate-cuneate, alternate, widely

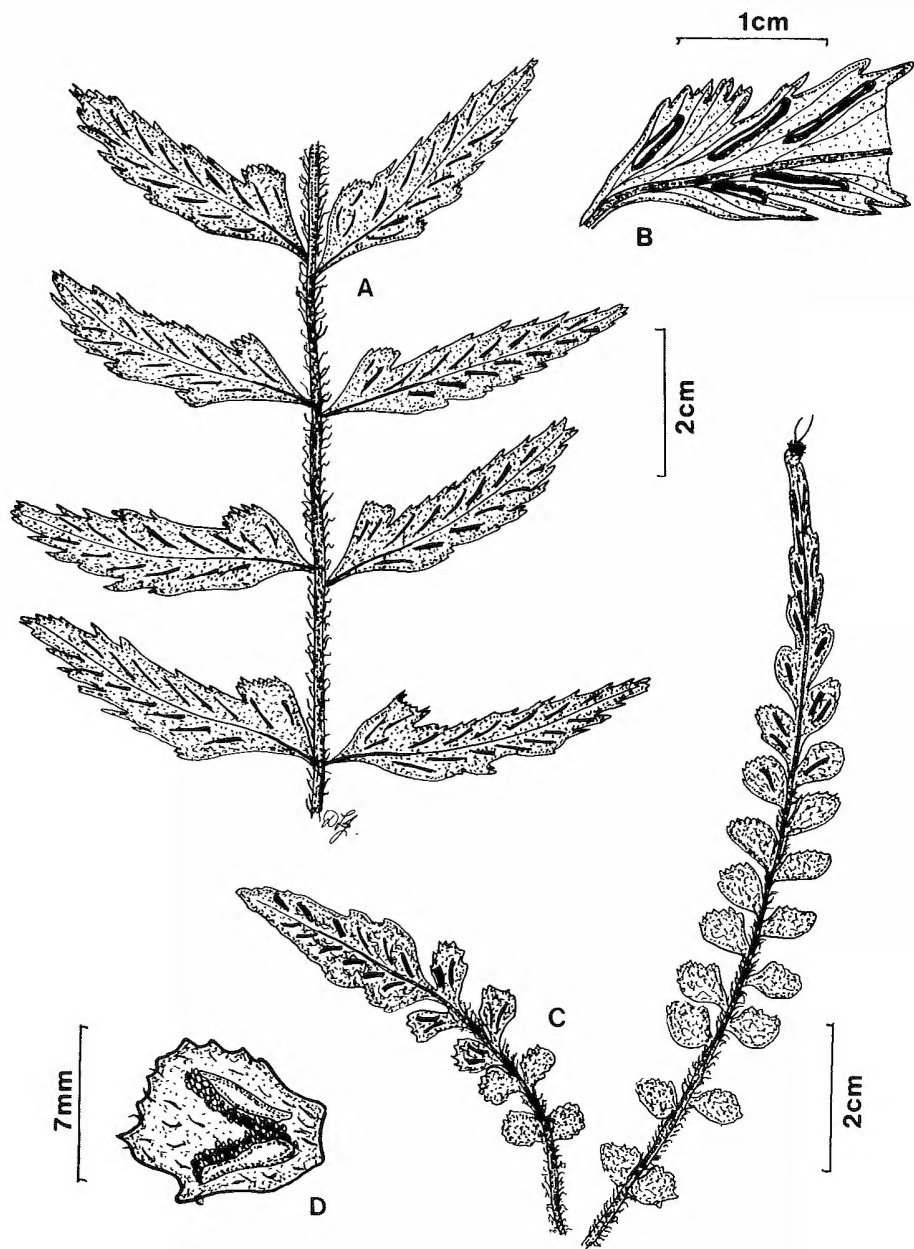


Fig. 5. *Asplenium capitisyork*: A. section of frond. B. basal half of pinna. *Asplenium bicentenniale*: C. two fertile fronds. D. fertile pinna. A,B Jones 1207; C,D Jones 1176.

spaced (1–2 times pinna width apart), sessile, the base of distal pinnae decurrent on rachis, margins irregularly dentate, dark green on dorsal surface, paler beneath, venation conspicuous. Middle pinnae 0.7–1.2 cm long, 0.5–0.8 cm wide, obliquely erect. Apical segment 2–4.5 cm long, 0.6–0.9 cm wide, irregularly lobed, lower lobes dentate, distal part often caudiform. Sori linear-oblong, up to 4 per pinna, set at an angle on both sides of the costa. Indusia linear-oblong, entire, membranous but firm. **Fig. 5C & D.**

Distribution: At present known only from the Lamb Range on the Atherton Tableland but probably also on adjacent ranges.

Habitat: On rocks and boulders near small streams in dense rainforest.

Notes: *A. bicentenniale* is somewhat similar to *A. paleaceum* but is a much smaller species with sessile to decurrent, fewer pinnae which are much shorter and cuneate in shape. The fairly broad, caudiform frond apex is a useful diagnostic feature. This species is locally common and forms small colonies by vegetative proliferation.

Conservation status: Uncertain, probably 2K by criteria of Leigh, Briggs and Hartley (1981).

Etymology: In recognition of the two-hundred years of botanical collecting that has occurred in Australia since its discovery by Captain James Cook.

New Combination

During field trips in Central Australia it became apparent that *Cheilanthes sieberi* subsp. *pseudovellea* H. Quirk & T. Chambers is a very distinct taxon having only superficial relationships with *C. sieberi* Kunze and it is here raised to specific rank.

Cheilanthes pseudovellea (H. Quirk & T. Chambers) D. Jones **comb. et stat. nov.**

Cheilanthes sieberi subsp. *pseudovellea* H. Quirk & T. Chambers, Aust. J. Bot. 31: 522 (1983). **Type:** Queensland, 20 K north of Mt Isa Waterhole, February 1977, T. Farrell (MEL 829830).

Distribution: Central Western Australia, southern Northern Territory, northern South Australia and central-western Queensland.

Notes: This species generally grows in much drier situations than *C. sieberi* although occasionally both species are found growing together. *C. pseudovellea* forms denser clumps than *C. sieberi* and has fronds which are duller green, thicker textured and with broader, blunter segments covered on both surfaces by fine white hairs. Hybrids are unknown.

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